City of Seattle

Department of Planning and Development
Diane M. Sugimura, Director

CITY OF SEATTLE
ANALYSIS AND DECISION OF THE DIRECTOR OF THE DEPARTMENT OF PLANNING AND DEVELOPMENT
Major Public Project Construction Variance

Application: Request for a Major Public Project Construction Variance ("MPPCV") from the maximum permissible sound level requirements of the Noise Control Code, Seattle Municipal Code ("SMC") Chapter 25.08, during construction of the SR 99 Bored Tunnel Alternative Design-Build Project. This variance application pertains only to construction activities that need to take place during nighttime hours, as those hours are defined in SMC 25.08. This work will be performed by a contractor under contract with the Washington State Department of Transportation.

Project No.: 3011620

Site Address: North Portal: 330 to 415 6th Avenue N; South Portal: 550 to 908 Alaskan Way S.

Applicant: Washington State Department of Transportation (WSDOT)

SUMMARY OF PROPOSED ACTION

The proposed action covers a portion of the Alaskan Way Viaduct Replacement Project, which would move SR 99 into a stacked bored tunnel beneath downtown Seattle and reconnect the street grid at the ends of the tunnel. The tunnel construction is expected to be initiated from the south portal just south of S Dearborn Street; the tunnel would transition back to a cut-and-cover section north of Thomas Street. This section would unbraid from the stacked configuration to a side-by-side roadway to match the existing grade of Aurora Avenue near Mercer Street. The activities that would be covered by the proposed Noise Variance include staging for and construction of the south and north portal entrances to the bored tunnel; staging for and construction of the south and north tunnel operations buildings; concrete pouring; tunnel shoring and ground modification; operation of the conveyance system and surface equipment needed to support continuous operation of the tunnel boring machine, including conveyance and transport of spoils from the tunnel excavation; and removal of the tunnel boring machine at the north portal entrance.

On April 13, 2011**,** the applicant submitted a complete application for this MPPCV to DPD; a revised application was submitted on May 17. This MPPCV is requested pursuant to SMC 25.08.590 and 25.08.655 to allow construction noise generated on site to exceed the maximum permissible sound level during nighttime hours (between 10:00 p.m. and 7:00 a.m. on weekdays and between 10:00 p.m. and. 9:00 a.m. on weekends and legal holidays) as specified in SMC 25.08.410 - 25.08.425. These provisions of the Code limit nighttime project sound levels (hourly L_{eq}) generated in Commercial districts to 60 dBA in Commercial receiving districts and 65 dBA in Industrial receiving districts. Sound generated in Industrial districts may not exceed 65 dBA in Commercial districts and 70 dBA in Industrial districts.

Based on the current anticipated construction schedule provided by WSDOT, the duration of the requested variance involving nighttime construction activities is expected to extend over an approximate 66-month period (5.5 years), with heavy civil work starting in summer 2011 and estimated to end in winter 2015. Additional time is included in the variance request to complete project closeout, including cleanup, dismantling of staging areas, and restoration where required by permit conditions.

BACKGROUND

It is the express intent of the City as stated in the Noise Control Code to "control the level of noise in a manner that promotes commerce; the use, value, and enjoyment of property; sleep and repose; and the quality of the environment." SMC 25.08.010. The standards for issuing a noise variance are stated in SMC 25.08.590, and the specific standards for issuing a MPPCV are stated in SMC 25.08.655. DPD's rules governing the issuance of noise variances are set forth in DR 3-2009.

The application materials submitted for this MPPCV identify the following activities that may occur during nighttime hours and may exceed the allowable nighttime construction noise limits:

- Staging for and construction of the south and north tunnel operations buildings;
- Staging for and construction of the south and north portal entrances to the bored tunnel;
- Pouring of concrete;
- Tunnel shoring and ground modification;
- Operation of the conveyance system and surface equipment needed to support continuous (24 hours per day) operation of the tunnel boring machine (TBM), including the conveyance and transport of spoils from the tunnel excavation;
- Removal of the tunnel boring machine at the north portal entrance.

The application does not include construction activities inside the bored tunnel itself, as this work would occur underground and the noise would be contained. The application also does not include demolition of the existing viaduct, because it is assumed that the demolition would occur during the day and would not exceed the limits established by the Noise Control Ordinance. Activities related to the demolition, such as hauling of debris, may occur during nighttime hours, but the associated noise is not expected to exceed the permitted limits.

In the application materials submitted for this MPPCV, the applicant identified the closest residential and hotel structures likely to be affected by the nighttime noise, presented data on existing sound levels and projected construction sound levels, provided documentation of sound levels for specific activities and equipment, and outlined required noise mitigation proposals to be followed by the contractor.

The application materials note that noise-producing, above ground construction activities and equipment are required to support around-the-clock operation of the TBM. Ventilation fans and power generators are needed at the surface to provide fresh air to the workers in the tunnel and a reliable power source for the underground equipment. The aboveground loading and unloading of required tunnel construction materials and the conveyance of spoil materials removed from the site also are required to efficiently maintain continuous tunnel operations. Scheduling construction activities during nighttime hours will allow the proposed project to be completed in a more timely, safe, and cost-effective manner.

WSDOT's application includes the Noise Management and Mitigation Plan ("NMMP") required by SMC 25.08.590D. The NMMP includes a description of the type of construction activities and equipment that will generate noise during nighttime hours. It also describes the expected exterior sound levels at each of the receiving sites, and compares these to the nighttime hourly L_{eq} and nighttime maximum noise levels (hourly L_1) that would be established through the variance process.

The NMMP includes prescriptive specifications for noise control at the construction sites that require the applicant's contractor to implement measures to establish compliance with the nighttime noise limits established in the variance application. Mitigation measures include ensuring noisy equipment meets identified noise limits and is properly maintained and operated; construction of noise barrier walls lined with noise-absorbing materials (including gates and/or doors); use of warning devices other than pure-tone backup warning devices; prohibiting jack hammering and impact pile driving during nighttime hours; and prohibiting public address systems during nighttime hours. Potential additional mitigation measures could include movable noise barriers, noise control curtains, and high-grade engine-exhaust silencers and engine-casing sound insulation. The applicant's proposal also includes procedures and programs for effectively monitoring, evaluating and resolving public complaints by taking appropriate corrective measures. A 24-hour construction hotline will be maintained by the applicant. A Nighttime Noise Monitor will act as an independent third party and provide oversight on nighttime work to ensure that the public's interest is represented and that the contractor strictly adheres to the Noise Control Code and permit conditions.

DPD held a public meeting on June 8, 2011, to take public comment on the variance application. As required by DPD Director's Rule 3-2009, Section D.2, notice of the June 8th public meeting was published in the Seattle Times on May 13, 2011 (more than 21 days prior to the meeting). Notice of the meeting also was published in DPD's Land Use Information Bulletin on April 14, 2011. At that time notice was mailed to residents within the immediate vicinity of the sound sources covered by the application.

Public comments and letters from citizens were received and considered during the preparation of this Analysis and Decision. Copies of all written public comments received by DPD are contained in the DPD file. Public comments on the variance application were considered only in relation to the noise impacts of the proposed activity.

DPD retained the services of BRC Acoustics and Technology Consulting ("BRC") to assist in reviewing and analyzing the variance application. BRC reviewed the MPPCV application and the written public comments, and provided comments and recommendations to DPD.

The 2010 Supplemental Draft National Environmental Policy Act/State Environmental Policy Act (NEPA/SEPA) Environmental Impact Statement (EIS) analyzed the Bored Tunnel Alternative. The lead agencies (Federal Highway Administration, WSDOT, and the City of Seattle) have identified the Bored Tunnel Alternative as the preferred alternative to replace the Alaskan Way Viaduct. The final EIS was published in July 2011, completing the SEPA process. The issuance of the Record of Decision, which completes the NEPA process, is scheduled for summer 2011.

FINDINGS

In accordance with DPD Director's Rule 3-2009, Section E, the following standards for a MPPCV were considered in reviewing the application.

1. Whether the applicant's information and analysis is accurate and complete (i.e., does it contain all of the elements required by the code).
The information submitted by the applicant has been reviewed by DPD and BRC and has been determined to be accurate and complete.

2. The physical characteristics of the sound proposed to be emitted pursuant to the variance.
Major construction activities associated with the project were evaluated in two general areas:

- The South Portal construction area from S Royal Brougham Way to S King Street and the area of tunnel shoring and ground modification activities between S Royal Brougham Way and Yesler Way;
- The North Portal construction area from Thomas Street to Mercer Street.

Within these areas, five locations of construction activity were modeled to estimate daytime and nighttime construction noise levels:

- The South Portal tunnel boring machine (TBM) assembly pit and staging area from the WOSCA staging area to S King Street;
- The South Portal construction area for tunnel drive and muck haul away via conveyor belt from WOSCA staging area to S King Street;
- Tunnel shoring and ground modification activities between S Royal Brougham Way and Yesler Way;
- North Portal construction area for the cut-and-cover portion of the structure and tunnel operation building from Thomas Street to Republican Street;
- North Portal construction area for removal of the TBM from Thomas Street to Mercer Street.

Dump trucks, backhoe and front-end loaders, crawler cranes, and concrete pumps will be used at multiple sites, and will be common sources of construction noise. Other equipment expected to generate noise include air compressors, oscillator drills, concrete trucks, and a gantry crane. Additional noise will be generated by the installation of secant piles and a thick concrete slab at the surface of the South Portal training box and by the tunnel shoring and ground modification activities between S Royal Brougham Way and Yesler Way.

The MPPCV application, which includes a detailed technical noise study, lists the anticipated sound levels produced by the nighttime equipment that will be used at the construction sites. The application also includes predicted nighttime project sound levels at nearby residential and commercial receiving sites. The existing nighttime ambient conditions and the predicted project sound levels are described below.

During February and March 2010 and February and March 2011, the applicant took measurements of existing ambient sound levels at the following nine sites identified as representative of nighttime noise – sensitive land uses close to each construction area. These sites are located in downtown and commercial zones.

North Portal Noise Measurement Sites – Thomas Street to Mercer Street

- Seattle Pacific Hotel, 325 Aurora Avenue N.
- Quality Inn, 618 John Street
- Travel Lodge, 200 Sixth Avenue N

South Portal Noise Measurement Sites – S Royal Brougham Way to Yesler Way

- Best Western, 77 Yesler Way
- 210 Alaskan Way S.
- Our Home Hotel Condominiums, 75 S Main Street
- Florentine Condominiums, 526 First Avenue S
- Triangle Building, 553 First Avenue S
- Silver Cloud Inn, 1046 First Avenue S

The results of these measurements are set forth in the MPPCV application and summarized in Table 1 below.

Table 1. *Average Measured Existing Nighttime Noise Levels – 1-Hour L_{eq} (dBA)*

Location	***Average Nighttime Noise Level* (midnight – 5:00 a.m.) L_{eq}***
Seattle Pacific Hotel, rooftop	*67*
Quality Inn, rooftop	*68*
Travel Lodge, rooftop	*60*
Best Western, rooftop	*61*
210 Alaskan Way S, rooftop	*79*
Out Home Hotel Condominiums, rooftop patio	*67*
Florentine Condominiums, fifth story	*66*
Triangle Building, second story	*67*
Silver Cloud Inn, rooftop	*76*

* Average nighttime noise-level limit based on the energy average of the 1-hour equivalent noise levels (Leq) from midnight to 5 a.m.

The applicant proposes that the variance allow the one-hour equivalent nighttime noise-level limit (L_{eq}) to exceed the ambient noise levels at identified receiving sites by no more than 6 dBA, and that the nighttime allowable noise limit (L_1 based on a slow-response A-weighted level) be set at 10 dBA above the one-hour equivalent nighttime noise-level limit (L_{eq}) to account for potential short-term noises. However, L_1 would not exceed the daytime construction noise-level limit of 85 dBA. These proposed limits are set forth in Tables 2-8, below.

Table 2: Predicted Noise Levels (dBA) for South Portal Excavation for Tunnel Boring Machine Assembly Pit

Location	**Average Nighttime Noise Level (L_{eq})**	**Nighttime Noise-Level Limit established by variance**		**Peak Nighttime One-Hour Construction Noise Level (L_{eq})**	**Peak Nighttime Maximum Construction Noise Level (L_1)**
		L_{eq}	**L_1**		
Florentine Condominiums	66	72	82	63.8	66.3
Triangle Building	67	73	83	71.1	73.5
Silver Cloud Inn	76	82	85	60.4	62.8

With the proposed noise barriers in place, no exceedences of the nighttime noise-level limits established by this variance are expected at sensitive receptor sites from construction activities related to South Portal excavation for the Tunnel Boring Machine assembly pit.

Table 3: Predicted Noise Levels (dBA) for South Portal Tunnel Drive and Muck Haul Away via Conveyor Belt

Location	**Average Nighttime Noise Level (L_{eq})**	**Nighttime Noise-Level Limit established by variance**		**Peak Nighttime One-Hour Construction Noise Level (L_{eq})**	**Peak Nighttime Maximum Construction Noise Level (L_1)**
		L_{eq}	**L_1**		
Florentine Condominiums	66	72	82	69.3	71.5
Triangle Building	67	73	83	72.8	75.1
Silver Cloud Inn	76	82	85	62.2	64.4

No exceedences of the nighttime noise-level limits established by this variance are expected at sensitive receptor sites from construction activities related to the South Portal tunnel drive and muck haul away via the conveyor belt.

Table 4: Predicted Noise Levels (dBA) for South Portal Training Box

Location	**Average Nighttime Noise Level (L_{eq})**	**Nighttime Noise-Level Limit established by variance**		**Peak Nighttime One-Hour Construction Noise Level (L_{eq})**	**Peak Nighttime Maximum Construction Noise Level (L_1)**
		L_{eq}	**L_1**		
Florentine Condominiums	66	72	82	65.1	67.3
Triangle Building	67	73	83	**78.6**	80.9
Silver Cloud Inn	76	82	85	60.9	63.2

Even with the proposed noise barriers in place, noise levels at the Triangle Building are expected to exceed the 1-hour equivalent nighttime noise level (L_{eq}) variance limit by 6 dBA during construction activities for the South Portal Training Box. Additional mitigation measures will be necessary to reduce nighttime construction noise. Supplemental mitigation measures that could be implemented to meet the noise variance nighttime limits may include:

- Temporary noise barriers around equipment or construction activities;
- Use of high-grade engine-exhaust silencers, engine-casing sound insulation and noise blankets or skirts for nighttime equipment, or use of specific equipment models known to generate less sound emissions;
- Use of noise-control curtains at the Triangle Building.

Additionally, loudest activities, such as installation of secant piles and a thick concrete slab at the surface, could be scheduled during daytime hours.

Table 5: Predicted Noise Levels (dBA) for Tunnel Shoring and Ground Modification at S King Street

Location	**Average Nighttime Noise Level (L_{eq})**	**Nighttime Noise-Level Limit established by variance**		**Peak Nighttime One-Hour Construction Noise Level (L_{eq})**	**Peak Nighttime Maximum Construction Noise Level (L_1)**
		L_{eq}	**L_1**		
Best Western	61	67	77	45.7	48.1
210 Alaskan Way S	79	85	85	67	69.3
Our Home Hotel Condominiums	67	73	83	70.6	72.8

With the proposed noise barriers in place, no exceedences of the nighttime noise-level limits established by this variance are expected at sensitive receptor sites from construction activities related to Tunnel Shoring and Ground Modification at S King Street.

Table 6: Predicted Noise Levels (dBA) for Tunnel Shoring and Ground Modification at S Main Street

Location	**Average Nighttime Noise Level (L_{eq})**	**Nighttime Noise-Level Limit established by variance**		**Peak Nighttime One-Hour Construction Noise Level (L_{eq})**	**Peak Nighttime Maximum Construction Noise Level (L_1)**
		L_{eq}	**L_1**		
Best Western	61	67	77	**70.1**	72.3
210 Alaskan Way S	79	85	85	77.6	79.9
Our Home Hotel Condominiums	67	73	83	**89.3**	**91.6**

During the construction activities associated with the secant piles at S Main Street, noise levels at Our Home Hotel Condominiums (75 S Main Street) are predicted to exceed the one-hour equivalent nighttime noise level (L_{eq}) variance limit by 16 dBA and the nighttime L1 by 9 dBA. (Additionally, daytime Leq is forecast to be exceeded by 4 dBA.) Noise levels at the Best Western would exceed the nighttime Leq by 3 dBA. Additional mitigation measures will be necessary to reduce nighttime construction noise. Supplemental mitigation measures that could be implemented to meet the noise variance nighttime limits may include:

- Temporary noise barriers around equipment or construction activities;
- Use of high-grade engine-exhaust silencers, engine-casing sound insulation and noise blankets or skirts for nighttime equipment, or use of specific equipment models known to generate less sound emissions;
- Use of noise-control curtains at Our Home Hotel Condominiums.

Additionally, loudest activities, such as installation of secant piles and a thick concrete slab at the surface, could be scheduled during daytime hours.

Table 7: Predicted Noise Levels (dBA) for North Portal Cut-and-Cover and Tunnel Operations Building

Location	**Average Nighttime Noise Level (L_{eq})**	**Nighttime Noise-Level Limit established by variance**		**Peak Nighttime One-Hour Construction Noise Level (L_{eq})**	**Peak Nighttime Maximum Construction Noise Level (L_1)**
		L_{eq}	**L_1**		
Seattle Pacific Hotel	67	73	83	**79**	81.4
Quality Inn	68	74	84	71.5	73.8
Travel Lodge	60	66	76	62.7	65.0

Even with the noise barriers in place, noise levels at the Seattle Pacific Hotel are expected to exceed the one-hour equivalent nighttime noise level (L_{eq}) variance limit by 6 dBA during these construction activities. Additional mitigation measures will be necessary to reduce nighttime construction noise. Supplemental mitigation measures that could be implemented to meet the noise variance nighttime limits may include:

- Temporary noise barriers around equipment or construction activities;
- Use of high-grade engine-exhaust silencers, engine-casing sound insulation and noise blankets or skirts for nighttime equipment, or use of specific equipment models known to generate less sound emissions;
- Use of noise-control curtains at the Seattle Pacific Hotel.

Table 8: Predicted Noise Levels (dBA) for North Portal Removal of Tunnel Boring Machine

Location	**Average Nighttime Noise Level (L_{eq})**	**Nighttime Noise-Level Limit established by variance**		**Peak Nighttime One-Hour Construction Noise Level (L_{eq})**	**Peak Nighttime Maximum Construction Noise Level (L_1)**
		L_{eq}	**L_1**		
Seattle Pacific Hotel	67	73	83	**74.8**	77.2
Quality Inn	68	74	84	66.4	68.9
Travel Lodge	60	66	76	65.7	68.1

Even with the noise barriers in place, noise levels at the Seattle Pacific Hotel are expected to exceed the one-hour equivalent nighttime noise level (L_{eq}) variance limit by 2 dBA during these construction activities. Additional mitigation measures will be necessary to reduce nighttime construction noise. Supplemental mitigation measures that could be implemented to meet the noise variance nighttime limits may include:

- Temporary noise barriers around equipment or construction activities;
- Use of high-grade engine-exhaust silencers, engine-casing sound insulation and noise blankets or skirts for nighttime equipment, or use of specific equipment models known to generate less sound emissions;
- Use of noise-control curtains at the Seattle Pacific Hotel.

In summary, tables 2 through 8 indicate that, at most locations and for most nighttime construction activities, the noise variance limits would be met without additional mitigation measures. For those activities that are projected to generate exceedences of the nighttime noise limits, further steps will be necessary to ensure that maximum noise levels are not exceeded at any of the sensitive receptor sites. These steps are indicated below in Item #5 of the Decision and Order.

3. The proposed times and proposed duration of the sound to be emitted.
The Washington State Department of Transportation is requesting a variance for construction-related noise producing activities from 10 p.m. to 7 a.m. on weekdays and from 10 p.m. to 9 a.m. on weekends and legal holidays for work associated with the construction of the Bored Tunnel for the Alaskan Way Viaduct. The construction work is anticipated to be completed over a five-and-a-half-year period.

4. The topography and population density of the area in which the sound is proposed to be emitted.
South Portal: The construction area of the south portal is about 15-20 feet above sea level, and is relatively flat, with a slight slope up from Elliott Bay to the east. The work would take place in Industrial General 2, Industrial Commercial, and Pioneer Square Mixed zones. Light industrial, commercial, and warehouse uses predominate in the Industrial zones, while the Pioneer Square Mixed zone encompasses a wide variety of uses, including commercial, office, hotels and residential.

North Portal: The area of the North Portal work is roughly 100 feet above sea level, with a gentle slope up from northeast to southwest. It is located within the Seattle Mixed zone, with Neighborhood Commercial 3 zoning a block to the northwest. A mix of uses are located at and near the North Portal work area, including commercial, residential, hotels, and the recently-constructed Gates Foundation headquarters.

5. Whether the public health and safety is endangered.
It is generally accepted that very high levels of noise have adverse physical impacts on humans including, but not limited to, hearing damage. Many standards apply to occupational exposures at high levels for prolonged periods of time. For example, the Occupational Safety and Health Act mandates a hearing conservation program by employers if sound levels exceed 85 dBA continuously over an 8-hour workday. If sound levels exceed 90 dBA continuously over an 8-hour workday, hearing protection is required. The project sound level limits anticipated by this Variance Application would maintain sound levels well below these identified levels, as shown in tables 2-8. The absolute maximum variance limit would be no greater than 85 dBA for likely sensitive receptors.

The increases from on-site nighttime project sound levels that are sought by the applicant and the resulting noise levels will likely affect some people but are not expected to cause a danger to public health or safety.

6. Relative interests of the applicant, other owners or possessors of property likely to be affected by the noise, and the general public.
The interests of the applicant in the construction of this proposed essential public facility are described in the application. Permitting construction 24 hours a day would allow excavation and support of the tunnel in the safest practical manner and minimize surface settlements and potential resulting damage to the built environment. Continuous tunneling operations also would permit earlier completion of the proposed project and substantial cost savings for the public due to reduced administrative expenses, reduced length of construction time needed for equipment and personnel, and savings on the inflation that would otherwise compound the cost of construction in later years. The condensed construction schedule would lessen the duration of construction impacts, including traffic, dust, and noise.

While the conditions imposed on this variance will require additional cost, effort and flexibility on the part of the applicant, they are not expected to cause undue hardship. The applicant appropriately identifies several affected receiving properties. Mitigation described elsewhere in this analysis, including noise

walls, use of appropriate warning devices; and prohibitions on jack hammering, impact pile driving, and public address systems during nighttime hours are expected to substantially reduce impacts to these and other affected properties.

The interests of the general public also will be served by the earlier completion of this transportation project and by the shorter overall construction period that nighttime construction will make possible, as a shortened construction schedule will result in both cost savings and in reduced construction-related impacts.

7. Whether the proposed noise mitigation approaches are likely to be effective.
The applicant's NMMP includes mitigation that will be implemented during the proposed nighttime construction activities. DPD will provide oversight of the nighttime work to ensure that the public interest is protected and that the contractor strictly adheres to the Noise Control Code and the conditions imposed by this Analysis and Decision. DPD will assign a Noise Program Specialist who will serve as the city's primary contact for noise related issues at this site. Representatives of the applicant with authority to stop work will be present on the project site during all work hours to ensure that mitigation measures are being followed. The applicant will also implement and maintain the public outreach and community involvement provisions described in the NMMP, including a 24-hour construction hotline to be answered by a live person.

DPD's noise consultant, BRC, concurs that the applicant's proposed noise walls around the perimeter of the construction, as well as other mitigation described in the MPPCV application, will be effective in reducing project sound levels such that impacts to the surrounding residential uses will be substantially reduced.

In addition to the requirements of DR 3-2009 that are discussed above, an applicant for a MPPCV must demonstrate that the standards in SMC 25.08.655A are met:

A. The Administrator may grant a major public project construction variance to provide relief from the exterior sound level limits established by this chapter during the construction periods of major public projects. A major public project construction variance shall provide relief from the exterior sound level limits during the construction or reconstruction of a major public project only to the extent the applicant demonstrates that compliance with the levels would:
1. Be unreasonable in light of public or worker safety or cause the applicant to violate other applicable regulations, including but not limited to regulations that reduce impacts on transportation infrastructure or natural resources; or
2. Render the project economically or functionally unreasonable due to factors such as the financial cost of compliance or the impact of complying for the duration of the construction or reconstruction of the major public project.

With regard to subsection 1, the applicant has demonstrated that it is not possible to operate the equipment necessary to support nighttime construction activities without violating the nighttime noise limits in SMC 25.08.410 and 420. Nighttime work would allow construction of the SR 99 Bored Tunnel Alternative Design-Build Project in the safest way practical and minimize surface settlements and potential resulting damage to the built environment. Additionally, limiting nighttime work would extend the project duration, further increasing traffic, dust, and noise impacts. With regard to subsection 2, the applicant has demonstrated that delay in construction of the Bored Tunnel and associated increased costs will result without nighttime construction.

CONCLUSIONS

1. Findings numbers 1 through 7 above are adopted as Conclusion number 1.

2. Proper notice was given of the proposed variance and the required public meeting took place.

3. Requiring the Washington State Department of Transportation to comply with the nighttime noise limits in SMC 25.08.410 and 420 would be unreasonable in light of the increased risks to both worker safety and public safety that would result from not allowing nighttime construction at the Alaskan Way Viaduct North and South Portal. The delay and increased cost that would result from compliance with SMC 25.08.410 and 420 would render the construction of the Bored Tunnel economically and functionally unreasonable.

4. Practical known and available mitigation measures for reducing the nighttime project sound levels and their effects on nearby residents are described in the application and will be incorporated into the project.

5. Chapter 25.08 provides adequate authority to mitigate the impacts of nighttime construction activity at the subject site and, pursuant to the SEPA Overview Policy in SMC 25.05.665, no additional mitigation is required pursuant to SEPA.

6. Based upon the written information submitted by the applicant and interested citizens, statements made at the public meeting, federal guidelines and the current body of scientific knowledge, there is no known danger to public health and safety if mitigating measures are put in place and followed, as provided in this Decision and Order.

DECISION AND ORDER

This variance is GRANTED for the noise related to the nighttime construction activities described in this Analysis and Decision and the applicant's submittal of April 13, 2011, as revised in the submittal of May 17, 2011, subject to the following:

1. This variance is subject to the conditions set forth below and to all requirements, specifications, standards, limits, and other mitigation measures identified by the applicant in its original application submitted on April 13, 2011, as revised in its submittal dated May 17, 2011, collectively "the application". Specifically, the applicant, the primary contractor, and any subcontractors are required to fully follow and execute all of the mandatory noise control measures identified in the application and its appendices and attachments in addition to the provisions set forth in this Decision and Order. If there is a conflict between the noise mitigation and control requirements or specifications of the application and this Decision and Order, the requirements of this Decision and Order shall be followed.

2. Nighttime project sound levels shall not exceed the proposed limits specified in Tables 2-8 of this Analysis and Decision. These sound level limits are intended to ensure that nighttime project sound levels will not exceed ambient noise levels at identified receiving sites by more than 6 dBA (L_{eq}), and that the nighttime allowable noise limit (L_1 based on a slow-response A-weighted level) be 10 dBA above the one-hour equivalent nighttime noise-level limit (L_{eq}) to account for potential short-term noises, with a maximum of 85 dBA, during the following schedule:

   Weekdays 10:00 p.m. to 7:00 a.m.

Weekends (including legal holidays) 10:00 p.m. to 9:00 a.m.

3. All noise barriers proposed by the applicant shall be installed per WSDOT's Noise Management and Mitigation Plan (dated May, 2011) prior to commencement of nighttime noise-producing construction activities as necessary to meet the sound levels permitted by this variance. The heights of the walls shall be those specified in the May 2011 NMMP, or as modified by a supplemental NMMP.

4. As noted in Section 3.5.2 of the May 17, 2011 report, the contractor shall implement all reasonable measures for the suppression of noise resulting from work operations, trucks, diesel powered equipment, generators, compressors, and similar equipment as necessary to meet Variance limits. Measures listed in this section are incorporated by reference into this decision.

5. As noted in the NMMP, exceedences of the noise limits established by the variance are anticipated at the following sites and for the following activities:

* South Portal Training Box;
* Tunnel Shoring and Ground Modification at S Main Street;
* North Portal Cut-and-Cover and Tunnel Operations Building;
* North Portal Removal of Tunnel Boring Machine

The NMMP identifies additional potential mitigation that could reduce the noise generated at these sites to the levels approved in this variance. Although the additional mitigation measures are reasonable, potential exceedences are substantial (up to 16 dBA above the proposed variance limits at the 75 S. Main Street site from Tunnel Shoring and Ground Modification activities). Given the extent of the potential exceedences and the necessity of meeting the variance limits, the WSDOT Contractor is required to provide their own NMMP prior to starting any of the activities listed in this item #5. This Contractor-supplied NMMP must identify the selected additional mitigation measures and provide calculations demonstrating that the measures will be effective in meeting the variance noise limits. If noise curtains are chosen as an additional mitigation measure, interior conditions at the affected receiving sites must be measured to establish a baseline prior to the start of the particular nighttime noise-producing construction activities, or the effectiveness of noise curtains must be established through some other means, such as modeling.

6. Public notification and communication will occur as described in the NMMP dated May 2011.

7. Periodic noise monitoring will occur consistent with Director's Rule 3-2009. Specifically, monitoring for this project will occur as described in the May 17, 2011 Variance Application and the accompanying Noise Management & Mitigation Plan (May 2011).

8. Fourteen (14) days prior to the commencement of the construction that is subject to this variance, the applicant shall provide notice of such commencement to the Administrator and to those community members who were notified of the original application. The form and content of the notification must be approved by the Administrator.

9. The applicant or its Contractor shall be responsible for the implementation of the Noise Management and Mitigation Plan. Implementation of this plan includes adherence to the NMMP by all contractor and sub-contractor work affiliated with this application. The applicant or its Contractor shall be responsible for all equipment being used on site whether being used by the Contractor or sub-contractor. If barriers are used to mitigate sound, the Contractor shall be responsible for the provision of such barriers.

10. This variance shall expire sixty-six (66) months from the commencement of nighttime construction.

11. Violation of any condition of this variance will result in a review of the conditions imposed by this variance, and possible imposition of new conditions or revocation of this variance.

12. Pursuant to SMC 25.08.655 D, the Administrator shall conduct a one-year review and may modify the terms and conditions of the variance or the NMMP as needed if it is determined that the current variance, the conditions of the variance, or the NMMP are not adequately protecting the public health and safety or reasonably controlling or mitigating the construction noise, or that there are more reasonable methods of doing so.

Dated the 8th of August, 2011.

Diane Sugimura, Director

Department of Planning and Development

& Administrator, Chapter 25.08 of the Seattle Municipal Code

APPEAL

The Noise Control Code SMC 25.08 provides that any person aggrieved by the denial, approval, or the terms and conditions imposed on a variance or by the extension of a variance by the Administrator, may appeal such decision to the City of Seattle. Hearing Examiner pursuant to the provisions of the Seattle Municipal Code Section 25.08.610.

Appeals of this decision must be received by the Hearing Examiner no later than ten days following the date of the decision and be accompanied by a check for $50 made payable to the City of Seattle.